

FIG. 1

FIG. 2 is a block diagram of a system architecture. The system includes a Cable Head End (CHE) 67, multiple Client Modules 14, and multiple Set Top Boxes (STB) 10. The Client Modules 14 each contain a Client Application 15, a CPSI Client 16, and an IPP Client 17. The Cable Head End 67 contains a CHE Application 22, a CPSI Client 23, an IPP Client 18, a Preferences Directory 217, a CPSI Spooler 20, and an IPP Spooler 37. The Set Top Boxes 10 each contain an STB Client App 277, a CPSI Client 292, a CPSI Spooler 26, and an IPP Spooler 25. The STB Client App 277 is connected to the CPSI Client 292, which is connected to the CPSI Spooler 26. The CPSI Spooler 26 contains a Logical Printer (1) and a Queue (1). The IPP Spooler 25 is connected to the CPSI Client 292. The STB Client App 277 is also connected to a Printer Driver, which is connected to a Printer 12. The Client Modules 14 are connected to the Cable Head End 67. The Cable Head End 67 is connected to the Set Top Boxes 10. The Set Top Boxes 10 are connected to the Printers 12.

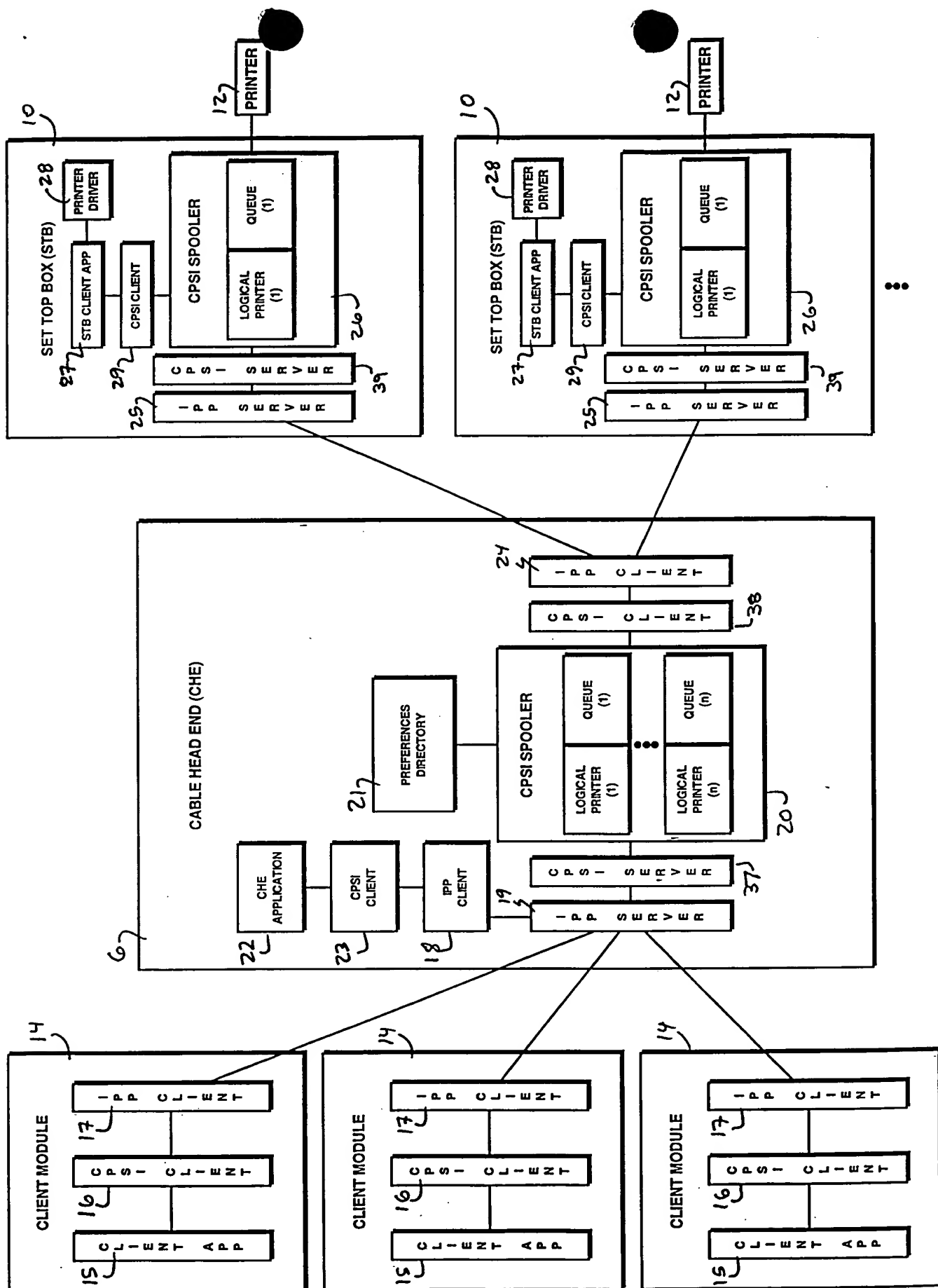


FIG. 2

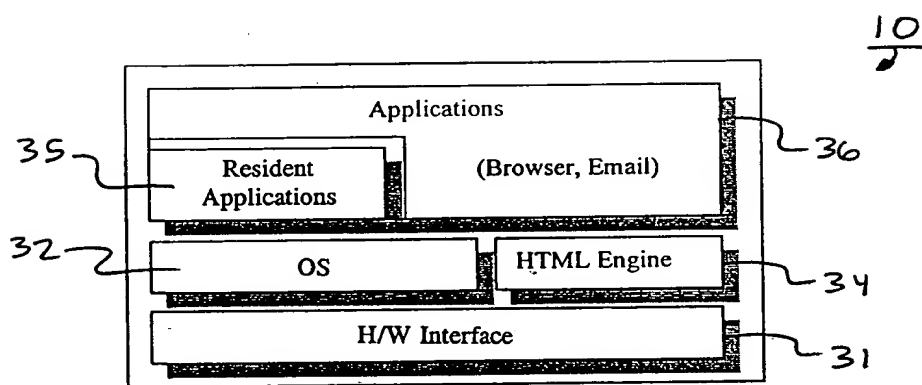


FIG. 3

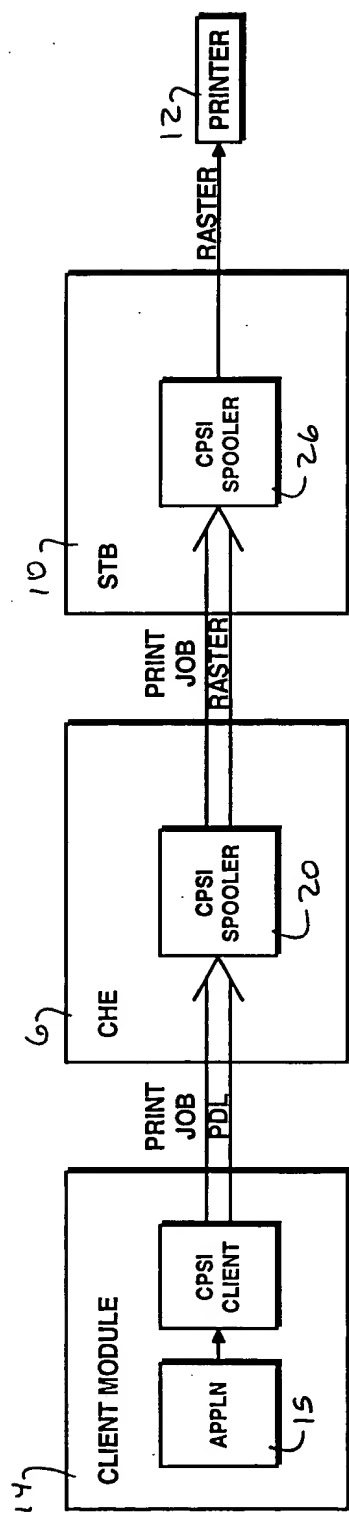


FIG. 4

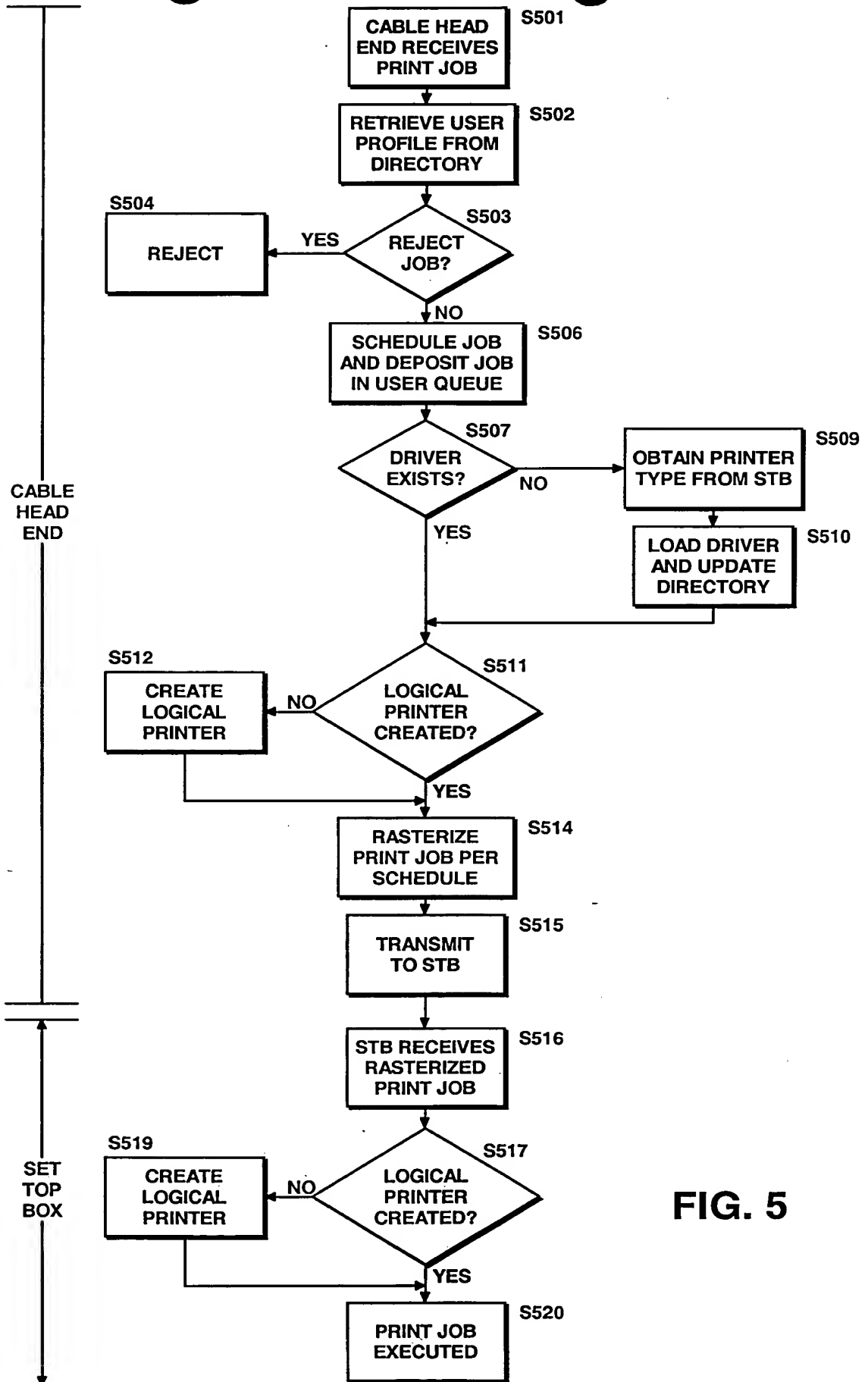


FIG. 5

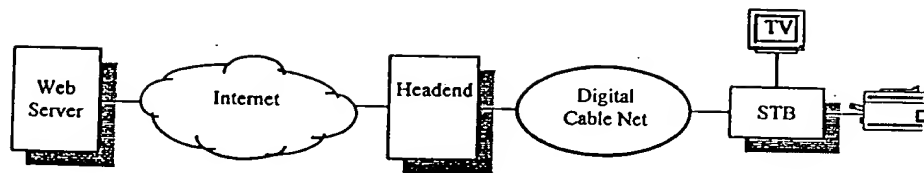


FIG. 6A

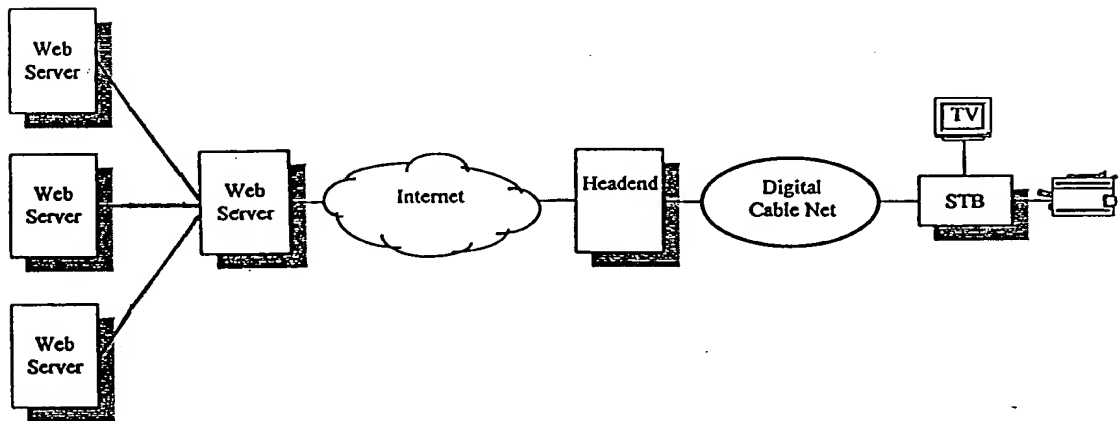


FIG. 6B

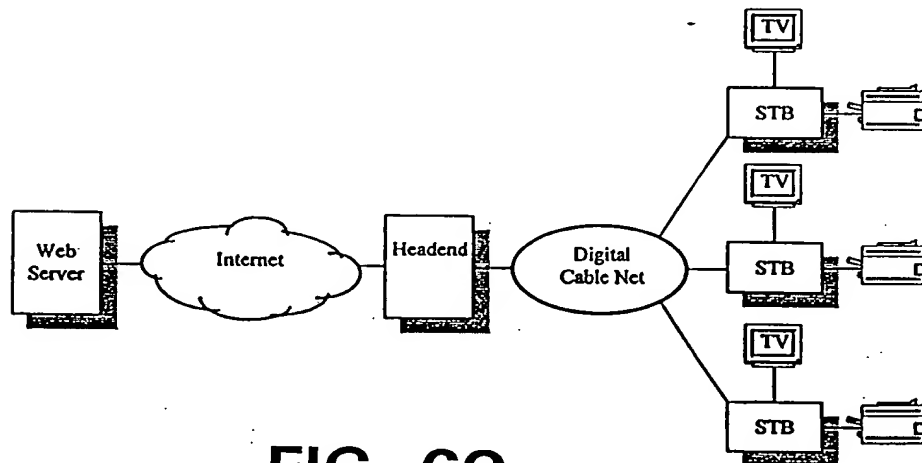


FIG. 6C

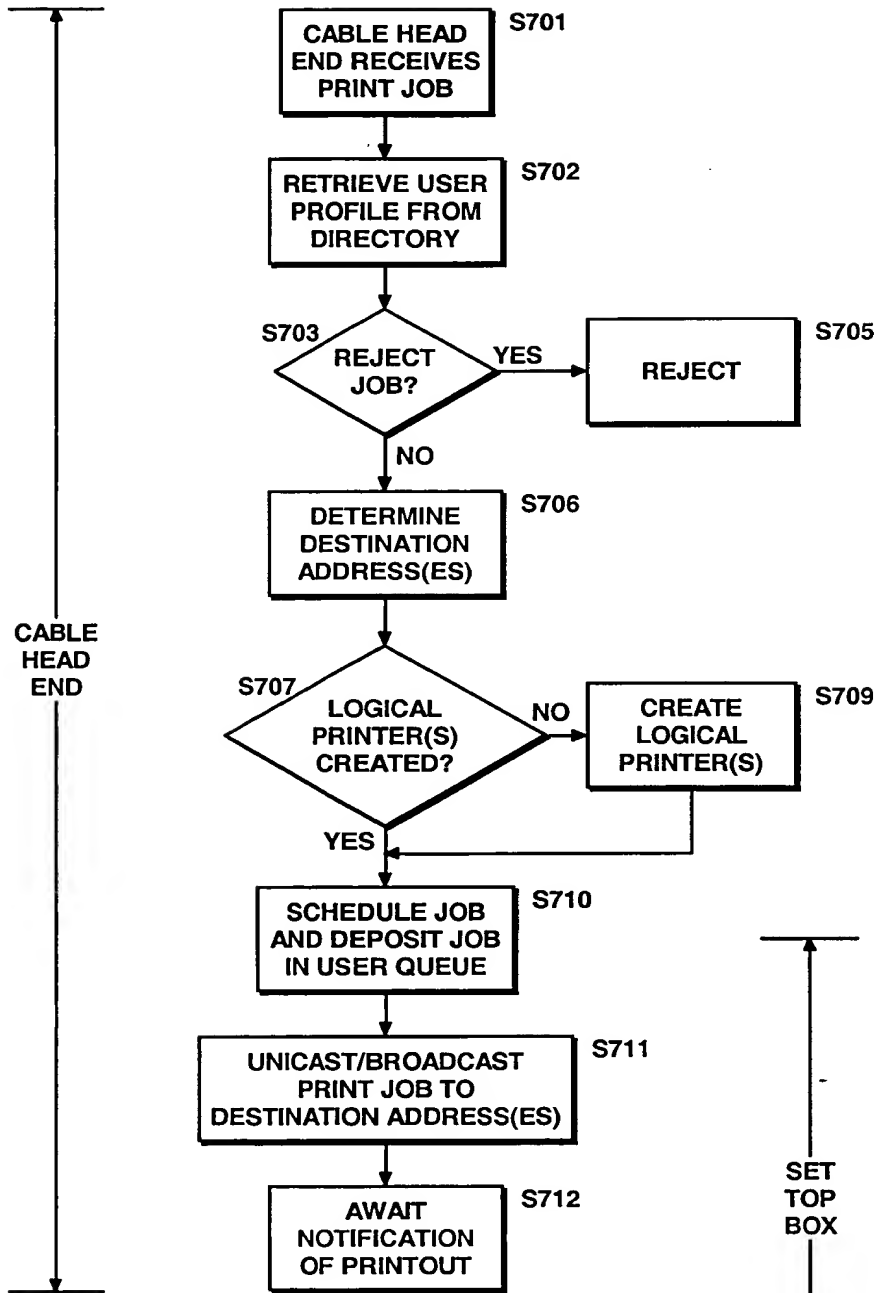


FIG. 7A

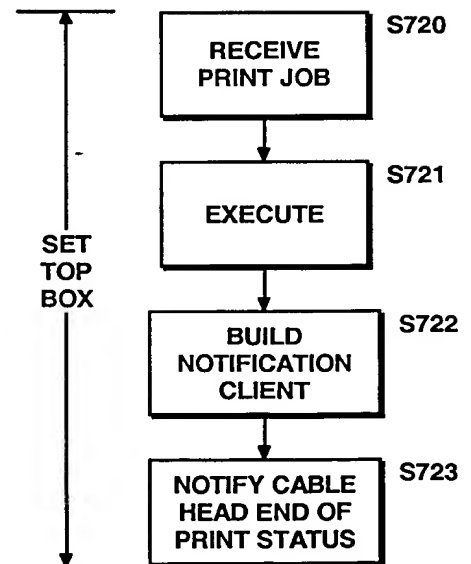


FIG. 7B

FIG. 8 is a block diagram of a network architecture. The architecture includes a Cable Head End (CHE) 6, multiple Client Modules 214, and multiple Set Top Boxes (STB) 210. The CHE 6 contains a CHE Application 22, a CPSI Client 23, an IPP Client 18, a CPSI Server 37, an IPP Server 39, a CPSI Spooler 20, a Logical Printer (1) and (n), a Queue (1) and (n), a Preferences Directory 21, a Notification Server 41, and an IPP Client 24. The Client Modules 214 each contain a Client App 15, a CPSI Client 16, and an IPP Client 17. The Set Top Boxes (STB) 210 each contain a Notification Client 40, an STB Client App 27, a CPSI Client 29, a CPSI Spooler 26, a Logical Printer (1), a Queue (1), a CPSI Server 39, and an IPP Server 25. The STB 210 is connected to a Printer 12. The CHE 6 is connected to the Client Modules 214 and the Set Top Boxes (STB) 210. The CHE 6 is also connected to a Notification Server 41. The CHE 6 is connected to a CPSI Server 37 and an IPP Server 39. The CHE 6 is connected to a CPSI Spooler 20. The CHE 6 is connected to a Logical Printer (1) and (n). The CHE 6 is connected to a Queue (1) and (n). The CHE 6 is connected to a Preferences Directory 21. The CHE 6 is connected to a Notification Server 41. The CHE 6 is connected to an IPP Client 24. The CHE 6 is connected to a CPSI Client 23. The CHE 6 is connected to a CHE Application 22. The Client Modules 214 are connected to the CHE 6. The Set Top Boxes (STB) 210 are connected to the CHE 6. The Set Top Boxes (STB) 210 are connected to a Printer 12. The Set Top Boxes (STB) 210 are connected to a Notification Client 40. The Set Top Boxes (STB) 210 are connected to an STB Client App 27. The Set Top Boxes (STB) 210 are connected to a CPSI Client 29. The Set Top Boxes (STB) 210 are connected to a CPSI Spooler 26. The Set Top Boxes (STB) 210 are connected to a Logical Printer (1). The Set Top Boxes (STB) 210 are connected to a Queue (1). The Set Top Boxes (STB) 210 are connected to a CPSI Server 39. The Set Top Boxes (STB) 210 are connected to an IPP Server 25.

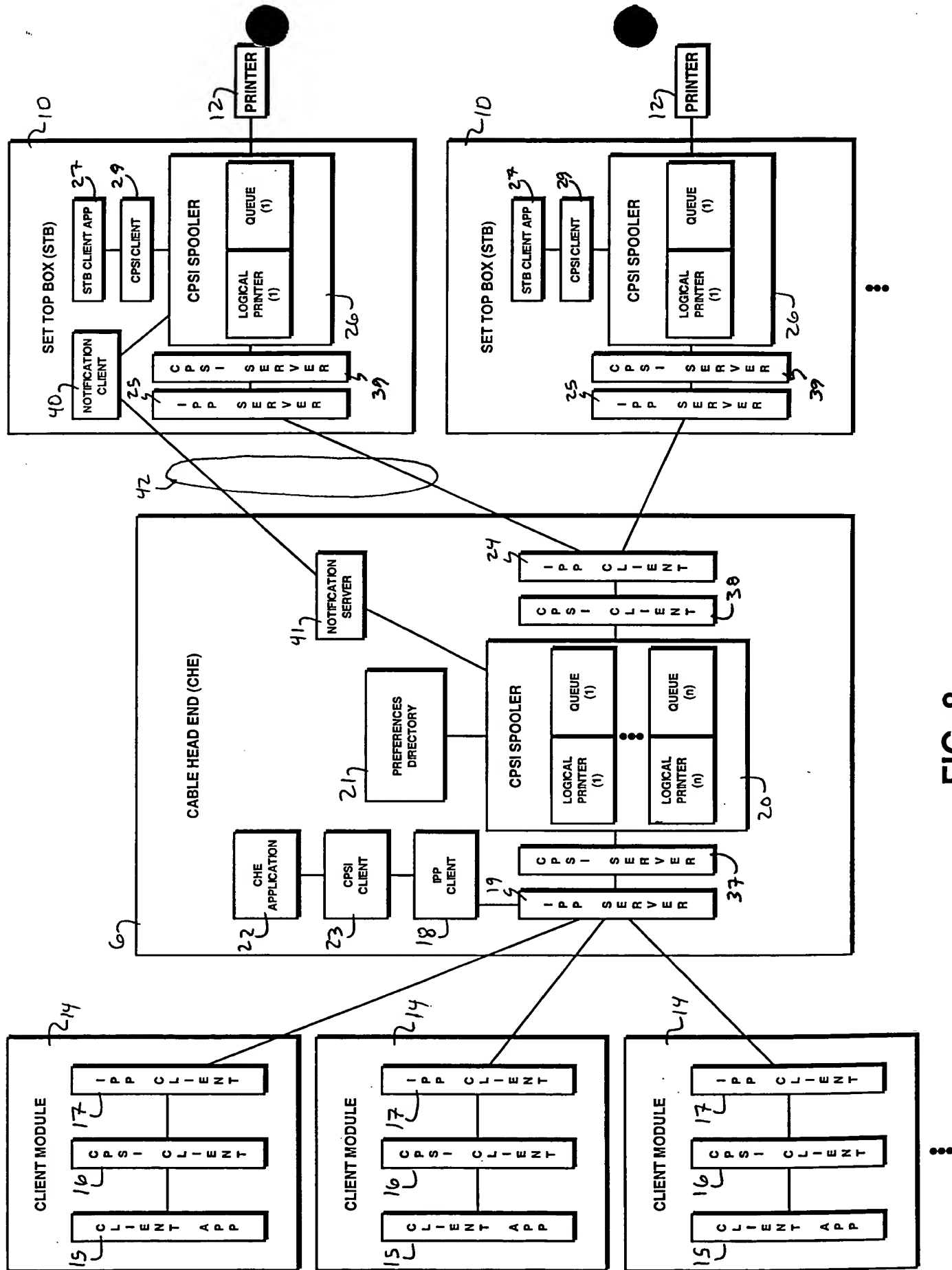


FIG. 8

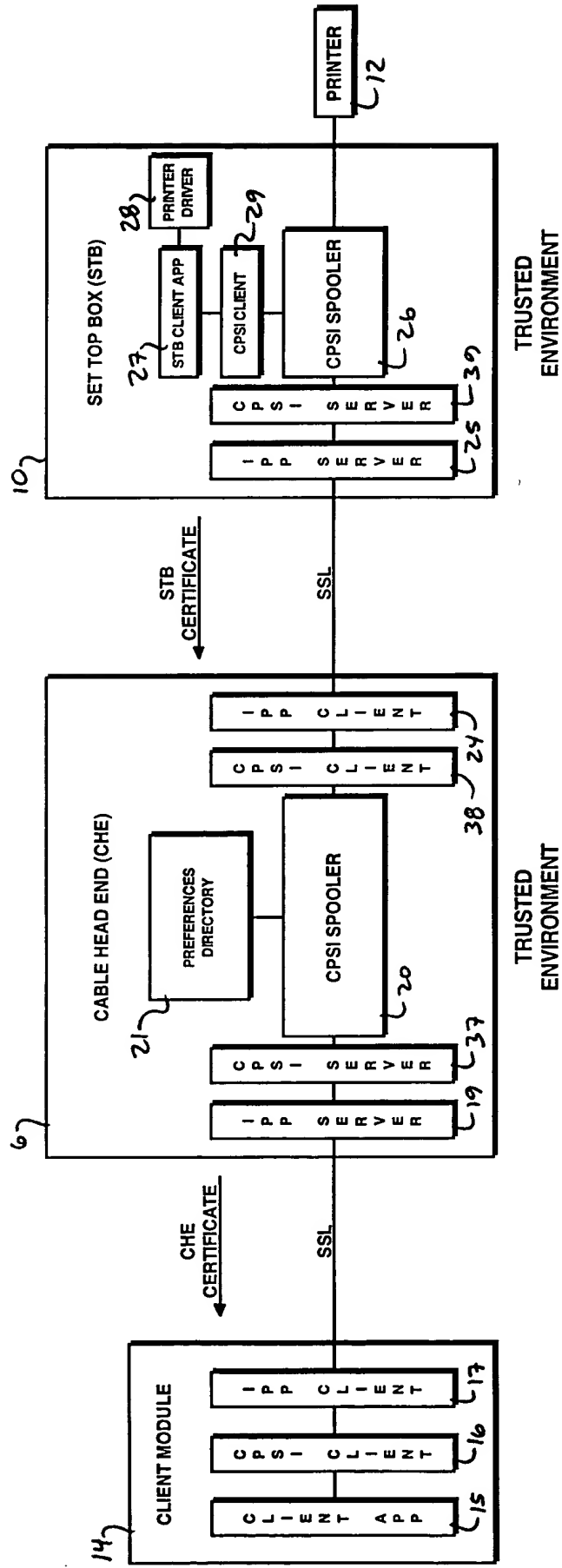


FIG. 9

FIG. 10 is a block diagram of a system architecture showing a Client Module (147) connected to a Cable Head End (CHE) (67) and a Set Top Box (STB) (107). The Client Module (147) contains a Client App (15), a CPSI Client (16), and an IPP Client (17). The Cable Head End (CHE) (67) contains an IPP Server (19), a CPSI Server (21), a Preferences Directory (21), a CPSI Spooler (20), a CPSI Client (24), and an IPP Client (24). The Set Top Box (STB) (107) contains an IPP Server (25), a CPSI Server (25), a CPSI Client (27), a CPSI Spooler (26), an STB Client App (27), a Printer Driver (28), and a Printer (12). The Client Module (147) and Cable Head End (CHE) (67) are in a Non-Trusted Environment, while the Set Top Box (STB) (107) is in a Trusted Environment. Communication between the Client Module (147) and Cable Head End (CHE) (67) is Rasterized/Encrypted. Communication between the Cable Head End (CHE) (67) and Set Top Box (STB) (107) is Rasterized/Encrypted.

PROTOCOL LAYERS

CPSI	1001
IPP	1002
HTTP	1003
SSL	1004
TCP/IP, OTHERS	1005

FIG. 10

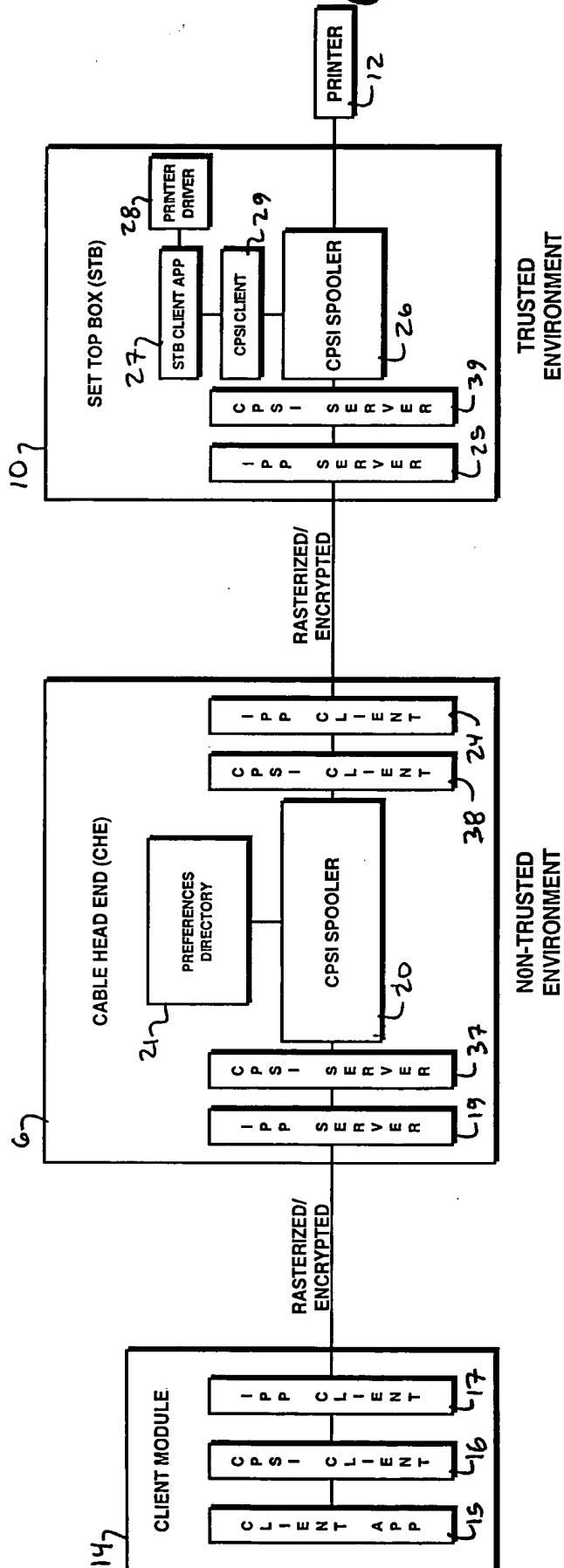


FIG. 11

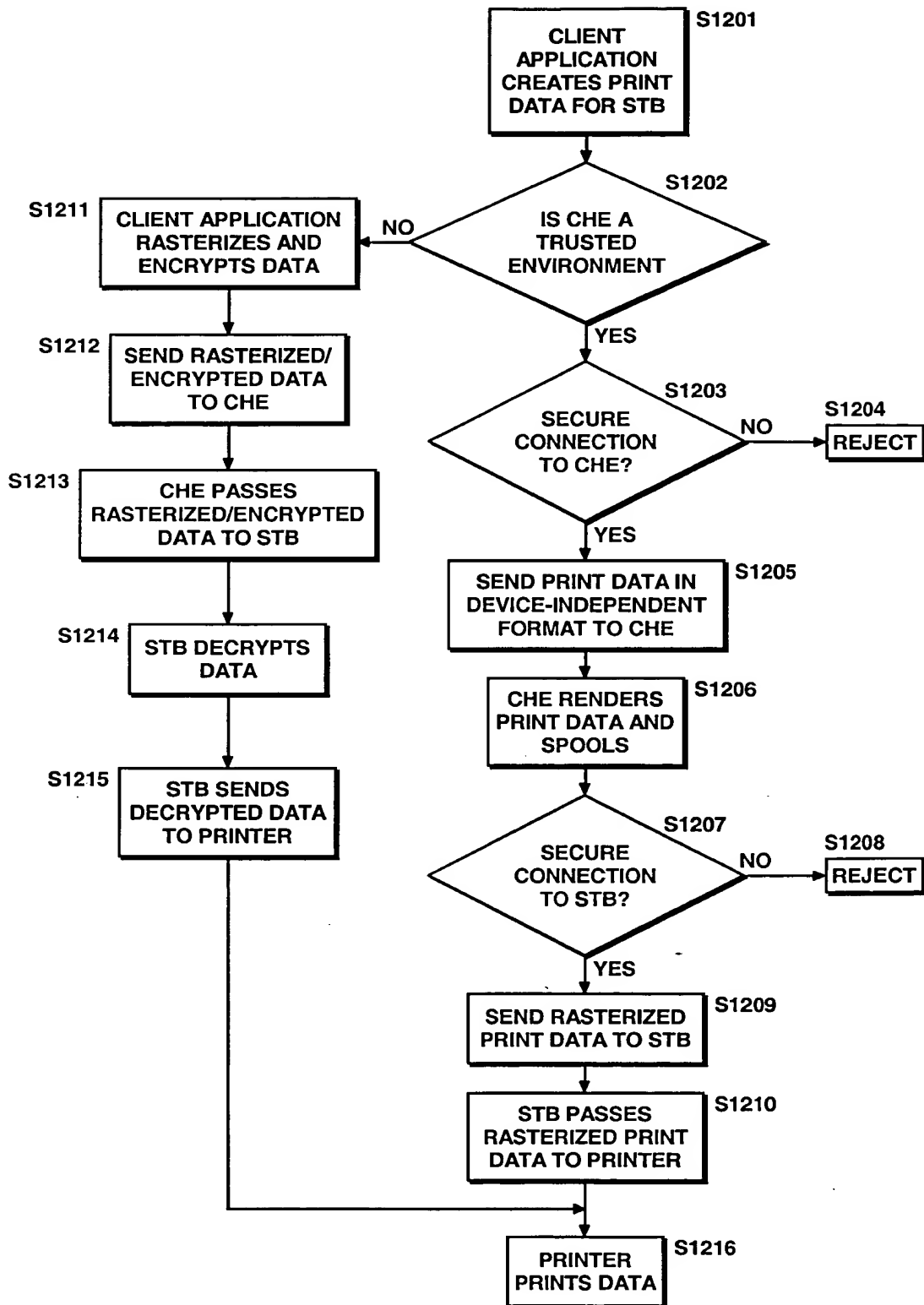


FIG. 12

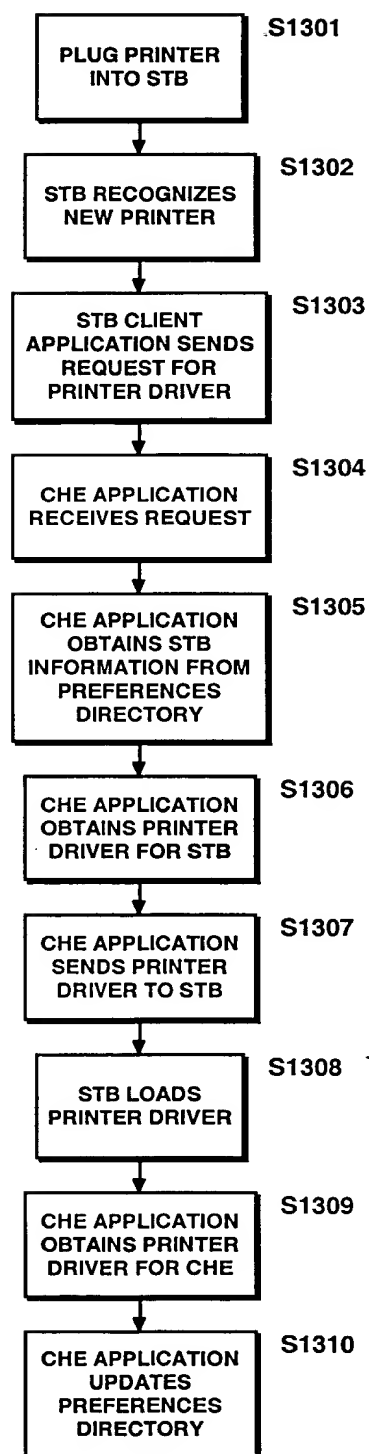


FIG. 13